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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,245	01/05/2001	Christopher E. Ruckman	V1000.0003/P003	3645

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EXAMINER	
TORRES, MELANIE	

ART UNIT	PAPER NUMBER
3683	

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/754,245	RUCKMAN ET AL.	
	Examiner	Art Unit	
	Melanie Torres	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23,25 and 26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *26* is/are allowed.

6)☒ Claim(s) *1-23 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacot et al. in view of Sandercock.

Re claims 1, 4, 5, 13-19, 23 and 25, Jacot et al. discloses a vibration control system comprising an actuator (28), a flux sensor (76), and a digital control system (200) wherein the electromagnetic actuator comprises a flux sensor which sends signals representative of the flux generated in the gap between the armature and the magnetic coil. However, Jacot et al. does not teach a digital control system for operating actuators as a function of sensed vibration of a variable-state structure, sensed vibration of a feedforward reference and the variable state of the variable state structure. Sandercock teaches a digital control system for operating actuators as a function of sensed vibration of a variable-state structure, sensed vibration of a feedforward reference and the variable state of the variable state structure. (Column 2, line 64 – Column 3, line 25) It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the teachings of Sandercock to the system

of Jacot et al. so as to allow for active vibration isolation that can be applied equally well to large and small structures for a wide range of frequencies.

Re claim 2, Jacot et al. as modified teaches wherein the magnet coil (60) is integrally fixed to the controlled structure. (Fig. 5)

Re claim 3, Jacot et al. as modified teaches wherein the flux sensor (76) is connected to the magnet coil (60). (Fig. 5)

Re claim 6, Jacot et al. as modified teaches wherein the digital control system includes modal feedback loops (212) for controlling the actuators in response to signals from the vibration sensors (76).

Re claim 7, Jacot et al. as modified teaches wherein the gains of the modal feedback loops are controlled as a function of the variable state of the variable-state structure. (Column 9, lines 39-66)

Re claim 8, Jacot et al. as modified teaches one or more feedforward sensors (74) for sensing vibration of feedforward references.

Re claim 9, Jacot et al. as modified teaches wherein the digital control system (200) includes one or more feedforward loops (218) for controlling the actuators in response to signals from the feedforward sensors (74).

Re claims 10-12, Jacot et al. as modified teaches wherein the plant transfer functions of the feedforward loops are controlled as a function of the variable state of the variable-state structure. (Column 9, lines 39-66)

Re claim 20, Jacot et al. discloses wherein the processor (200) is arranged to calculate the difference between the flux density sensed by the magnetic flux density sensor and the flux density required in the actuator. (Column 9, lines 39-66)

Re claim 21, Jacot et al. discloses wherein the electromagnet (60) is integrally connected to the variable-state structure, and the armature (66) is integrally connected to an external structure.

Re claim 22, Jacot et al. discloses wherein the electromagnet (60) is sealed to prevent degradation by fluids and dust. (Fig. 5)

Allowable Subject Matter

3. Claim 26 is allowed.

Response to Arguments

4. Applicant's arguments filed July 7, 2004 have been fully considered but they are not persuasive. Applicant argues that Jacot et al. as modified does not teach a force linearized. Applicant discloses on page 4 of the disclosure wherein a magnetic force is generated across a gap, and that force is linearized by flux feedback. Jacot et al. discloses wherein the magnetic actuators are controlled preferably through local flux feedback loops. (Abstract) Therefore, it is unclear how applicant's invention can generate a "force-linearized flux" and the invention of Jacot et al. does not.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Torres whose telephone number is (703)305-0293. The examiner can normally be reached on Monday-Friday, 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on (703)308-3421. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Melanie Torres

MT
October 13, 2004

Robert Siconolfi 10/16/04
ROBERT A. SICONOLFI
PATENT EXAMINER